Magnetic resonance imaging for placenta accreta: hope for the future

TO THE EDITOR: In the recent article by Einerson et al,[1] the utility of magnetic resonance imaging (MRI) as an adjunct to ultrasound for placenta accreta spectrum (PAS) characterization was called into question. We applaud the authors for their investigation of this topic, which is becoming increasingly important, given the projected increase in prevalence of this highly morbid condition that parallels cesarean delivery rates.

We have some concerns about the nature of the study that may influence the far-reaching conclusion that MRI is "misleading" when used with ultrasound—a conclusion that we believe is premature based on the present data. First, the study data suggest that there was an average of about 4 patients per year with accreta undergoing MRI, which raises questions about the ability of a system/institution to achieve full-skill proficiency for interpreting these studies. Second, the MRI accuracy is reported at approximately 63% when used as an adjunct to ultrasound. This rate is rather low and potentially inconsistent with published data on placental MRI accuracy vis-à-vis gestational age. For example, one study suggested that placental MRI performed <24 weeks of gestational age is not as accurate as placental MRI performed later in gestation.[2] This consideration is important, because although current practice standards for PAS include placental MRI done early in the third trimester for surgical planning purposes,[3] the authors did not report specifically when (gestational age) the MRIs were performed—they state that they were done in the "second and third trimester." A potentially broad range of gestational age in the sample could have impacted (lowered) the reported MRI accuracy. It would also be helpful if there were data reported on the total number of placenta accreta cases over that time period, vs the ones who received MRI.

There is no doubt that ultrasound is and should be the first-line test for diagnosing PAS. However, there are times when ultrasound may be limited and/or ultrasound findings may be inconclusive, such as when there is a posterior placenta, the patient is obese, or when there is diagnostic uncertainty over the presence or severity of PAS.[4] Ultrasound also can be limited due to its operator-dependence. Knowing the severity of abnormal placentation can help with surgical planning, and MRI may be of assistance in this regard, as pointed out by others.[5]

In our opinion, the matter of MRI with or without ultrasound for PAS characterization is not yet resolved, and the conclusions of the present study may be overstated. There is reason to be optimistic that placental MRI will improve in the coming years. Research has been done and is currently underway on several functional MRI techniques that may improve the diagnostic capabilities of placental MRI.[6] This includes arterial spin labeling, blood oxygen level–dependent, diffusion-weighted imaging, intravoxel incoherent motion, magnetic resonance spectroscopy, and dynamic contrast-enhanced MRI. Although these functional techniques have their own limitations and most are not used in everyday clinical practice, used in conjunction with standard MRI sequences, there is hope that these techniques may improve the diagnosis of PAS on MRI.

Many of these techniques have already shown differences in patients with intrauterine growth restriction and preeclampsia compared with patients without these conditions.[6] Diffusion-weighted imaging MRI is one functional MRI technique has already been shown to improve conspicuity of the placental–myometrial interface and is now commonly used in the standard placental MRI protocol in many institutions[7]; however, it seems that this modality was not included in the study by Einerson et al. Standardized reporting of placental MRIs also may improve the clinical utility of the placental MRIs for surgical planning, particularly by radiologists who may not be experienced in reading placental MRI for PAS. There is also room for considering enhanced ultrasound techniques, such as "contrast-enhanced" ultrasonography.[8]

There are several questions that need to be systematically addressed in rigorous study. For example, which MRI sequences are the most accurate? Should protocolization of the MRI sequences themselves be considered? What operator characteristics should be weighed and addressed in ultrasound studies and in clinical practice? Our own research has suggested limitations associated with MRI for placenta accreta outcomes,[9] but we acknowledge that a large unmet need is a standardized grading/interpretation system for these types of images.

Given these considerations, we urge the authors, and the broader clinical and scientific community, to continue rigorous investigations in this area, to develop protocols for imaging sequences and triage for MRI referral, and to continue to consider the merits of MRI for PAS cases as clinical judgment dictates. ■

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Minimally invasive surgery for early-stage cervical cancer: is the uterine manipulator a risk factor?

Check for updates

TO THE EDITORS: We read with great interest the study by Matsuo et al[1] highlighting the minimally invasive surgery (MIS)/MIS trachelectomy for reproductive women with early-stage cervical cancer. Given the results of recent reported studies that demonstrated decreased survival with MIS, the authors discuss the use of uterine manipulators as well as vaginal colpotomy as potential factors affecting tumor spread following MIS.

An uncommon variant of cervical adenocarcinoma is the villoglandular adenocarcinoma (VGA). VGA generally presents as an exophytic mass arising from the endocervical canal. It occurs mostly in young women and has an excellent prognosis. In a systematic literature review (unpublished data) from 1989 to 2018, we found 8 reported recurrences in 231 patients treated surgically for VGA of the cervix (FIGO stage Ia–Ib1). All 8 cases were histologically well differentiated pure VGA and had neither lymphovascular space invasion nor lymph node involvement. The recurrence sites were in 5 cases: episiotomy scar (n = 1), pelvic wall (n = 2), vaginal vault (n = 2). The primary treatment was open surgery. A recent case series (n = 15) reported 3 intraabdominal metastases: 2 in the ovary and 1 in the liver.[2] The 3 patients were treated through MIS.

This intraabdominal metastasis of VGA is remarkable because VGA has an unusually favorable prognosis. Was there a residual tumor in the endocervical canal? In all 15 cases, VGA was diagnosed after a punch biopsy. Only with uncertain tumor was a conization conducted. Among potential reasons for the inferior oncological outcomes in patients with cervical cancer who underwent MIS than in women who underwent open surgery, the routine use of a uterine manipulator might increase the propensity for tumor spillage intraperitoneally after colpotomy under laparoscopic vision.[3]

Another conceivable mechanism is the hematogenous tumor cell spread intraoperatively because of the continuous mechanical manipulation of the cervix, potentially leading to an influx of tumor cells into veins and lymphatic vessels. The unavoidable damage of the tumor and its vasculature during surgery leads to a shedding of tumor cells into the blood circulation. The level of circulating cancer cells is a strong predictor of tumor recurrence.[4]

Given the uncertainty of the oncological safety of uterine manipulators in patients with cervical cancer, their use should be limited to patients with removed tumors. A pretherapeutic large loop excision with tumor-free margins may be an indispensable prerequisite for the use of manipulators during MIS if open surgery is not an option. ■

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